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ORIGINAL ARTICLES.

CONGENITAL FISTULÆ OF THE LACHRYMAL SAC.

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In the *Archives of Ophthalmology* Vol. XXIII, No. I, occurs a short article from the pen of Dr. Casey A. Wood, of Chicago, entitled "Congenital Bilateral and Symmetrically Placed Fistulæ of the Lachrymal Sacs;" in which he reports a case of this rare affection and the same time calls attention to the fact that the number of such cases recorded in the literature is extremely rare. From the investigation of the literature at my command, I fully agree with this latter statement. From the article of Dr. Wood's, we ascertain that Prof. Manz, "considers it at least doubtful whether there is such a thing as congenital fistula of the sac, but admitting its possibility would regard it as an arrest of development, an imperfect closure of the groove which in the embryo runs from the eye to the olfactory pit."

Dr. Wecker has mentioned cases in his "Treatise on Ophthalmology" as occurring in the practice of Beer, Scarpa and others, and says that the openings were capillary in character, the lachrymal fluid appearing only during the act of crying, or when pressure was made upon the sac.

Hartridg has also mentioned a case of "Double Lachrymal Fistula," but the details of the report were very imperfect.

Dr. Wood mentions the fact that only perfect and trustworthy report of such a case was recorded by Aynew, of New York. The fistulæ, similarly situated at the lower end of both lachrymal sacs, occurred in a three year old child apparently healthy, with no other congenital defect and who had suffered with no previous inflammatory affection of the eye.

Dr. Wood's case was that of a man, 36 years old, who complained of no ocular symptoms except a slight accommodative asthenopia. When he was 18 years of age, he was treated for an abnormal opening in either tear sac.

Under treatment by syringing out the sacs, probing, the use of glasses and better care of the eyes, the lachrymation almost entirely ceased, returning only when driving in the wind or on exposure during cold weather. By examination a minute opening was found at the lower extremity of each lachrymal sac into which a No. 1 Bowman's probe could be passed. The patient had never noticed any discharge from these openings save the natural lachrymal secretion. The openings however were found to be puckered seemingly due to the formation of cicatricial tissue.

To this number already mentioned I wish to add another case which recently occurred in my own practice.

Mary M., colored, age 14; presented herself at the Eye Clinic of the Southern Medical College, on account of "increased tears" in the eyes, but mainly on account of the burning and gritty sensation which was referable to the lids. The patient gave no history of a previous inflammation about the eyes or palpebral surfaces, and so far as could be ascertained the past history was free from any ocular trouble.

On examining the palpebral conjunctiva a marked case of

follicular catarrh could be seen especially marked at the outer canthi. An application was made to this condition and the patient about to be dismissed, when my assistant called attention to two little beads of water which were present upon symmetrical spots on each side of the nose. Upon further examination I discovered two minute fistulæ of the lachrymal sacs, situated in exactly symmetrical positions at the lower portion of each sac and each opening blocked with a minute head of clear fluid.

On inquiry from the mother, I ascertained that water had been running out of these little spots ever since she could remember. With the exception of the present conjunctival trouble the child had never experienced any inconvenience. On pressing upon the sacs, clear lachrymal fluid would exude through these openings without any signs whatever of mucous or pus. The openings admitted with difficulty a No. 1 Bowman's probe, with which no exposed or roughened bone could be detected. The puncta were freely patulous. I explained to the mother what would probably have to be done, requesting her especially that the child be brought back, but as was anticipated, an act proverbial to the colored race, the patient has never returned. The case is interesting from the fact that the evidence of its congenital character is borne out by the history of the case and also from the lack of any evidence of catarrhal trouble within the lachrymal ducts. The nose was carefully examined without finding anything abnormal enough to account for a stenosis of the lower portion of the canal. The introduction of a probe was so painful that I did not make any strenuous endeavors in that direction.

Another point I wish to mention here although somewhat of a digression and that is the presence by no means infrequently of trachoma among the colored race. One sees mentioned quite frequently in text-books and other articles that trachoma among the colored race is very rare, the truth of which assertion seems to be dependent upon an article written several years ago by Dr. Swan M. Burnett, of Washington, in which he gave his clinical experience as vouching for the truth

of this statement. While I do not deny for a moment the truth of this assertion as stated by Dr. Burnett, from his experience among the colored race in his own district, I do deny that it is universally applicable to the colored race all over the South. I make this assertion from my own individual experience here in a city where at the head of a large clinic, I have had opportunity to verify the truth of the same. This experience I think will coincide with that of other oculists in our city, and while I do not make the statement as applicable to every portion of the South, I do think that the frequency of trachoma among the colored race must largely depend upon the locality in which they dwell.

In making this statement, I wish to add a corollary to the effect that true trachoma is not near so prevalent among any class of people in the South, as will be found in the Northern and European cities. In other words with us true trachoma is not very frequent, but when it does occur it is almost equally prevalent among the colored and among the white population. But these latter sentences are entirely foreign to the caption of this article and in future I wish to treat of some of the especial manifestations of ocular troubles among the colored race.

A CONTRIBUTION TO THE EXPERIENCES IN REMOVING THE LENS IN HIGH-GRADE MYOPIA.

BY ADOLF ALT, M.D., ST. LOUIS.

Among a small series of cases in which I proposed, and the patients allowed, the removal of the clear crystalline lens with the object of—so to speak—curing their high-grade myopia and which have convinced me, that in the proper cases this is a well warranted and admirable procedure, I had one case, the history of which is of more than common interest.

Ch. H., an immensely overgrown boy of 17 years, all bone and skin, and with a strangely small head, came to consult me March 4, 1890. I found a myopia of 20 D. and astigmatism of 2 D.; slight dislocation of both lenses downwards and considerable choroidal changes in both eyes, to which were added a few old chorio-retinitic patches in the right eye. With the correcting lenses, which by the way rendered his nose continually sore on account of their weight, his vision was but R. = $\frac{18}{\infty}$; L. = $\frac{6}{\infty}$. He could not attend any school and felt so useless in the world that he, as well as his family, entreated me, as they had done to others before, to do something for him. Having knowledge of a case in whom Dr. Weber, of Darmstadt, Germany, had many years previously rendered a highly myopic eye almost emmetropic by removal of the lens, I spoke of this as the only possible way, in which an improvement might be produced. Yet, on account of the extensive choroidal changes, I did not dare to perform the operation. I told the patient, however, that it was probable that the dislocation of the lenses would increase and that it might produce symptoms which would encourage me to make the trial on one eye.

On May 10, 1892, he called on me again. The lenses had both sunk far enough downwards to allow of their upper margin being just seen in the undilated pupil. He complained of continued pain particularly in the right eye, which showed ciliary injection and felt slightly harder than the other. I ordered rest and eserine instillations, and on May 25, when the inflammatory symptoms and pain had been gone for about a week, I very cautiously needled the right anterior lens capsule. Without any symptoms of inflammation, not even irritation, the lens grew more and more dim. On July 11, I needled it again and on September 13, for the last time. A month after this he had vision $\frac{20}{1}$ in this eye without any glass; he also refused any cylinder. He read Sn. 1 easily at 10 inches with +2.75D. This condition has remained unchanged ever since. He has been going to the day- and night-schools to fit himself for business and for a year has filled positions which gave him employment partly out of doors and partly at the desk. In fact, the improvement of this eye is so enormous, that it has made a new man of him. In the exuberance of his joy he wrote me, that he would willingly go blind, if necessary, for having enjoyed his present vision, if but for a year.

The case has, however, besides this highly brilliant one, also a shady side.

On November 11, 1892, the success with the right eye prompted me to needle the left lens also. Nothing suspicious followed this and the second needling. Yet, while the lens substance gradually melted away, the field of vision became very much reduced on the nasal side and finally when there was a sufficiently pupil to inspect the interior of the eye on January 6, 1893, the outer half of the retina was found to be detached. This eye is, therefore, worse off than it was before the attempt to improve it.

Luckily, the patient is still so elated at the success with the right eye, that the loss of the left one appears to him to be of little account.

Fukala and others have warned against such operations in eyes with considerable choroidal changes. I have always

thought that this warning was not quite warranted by facts; yet in this special case it kept me from attempting the operation, until I thought myself forced to do something on account of the increasing laxity of the zonule of Zinn. I suppose a differentiation should be made between choroidal changes due to stretching alone and to such changes combined with adhesive inflammation. While in the former the danger from the operation may be greater. I think in the latter cases the adhesive chorioretinitis is, perhaps, rather an insurance against detachment of the retina. This, also, is the only way in which I can explain the divergent results in these two eyes.

PARESIS OF THE OCULO-MOTOR NERVE IN COMBINATION WITH ACUTE PNEUMONIA.

BY ADOLF ALT, M.D., ST. LOUIS.

In the February number of this journal a case of paresis of the abducens nerve in connection with pneumonia has been reported, which had been observed by Dr. Westhoff. He explained the occurrence of such a paresis as due to the toxins circulating in the blood. He further mentioned, that he could find in literature but one statement, by Oppenheimer, showing that similar conditions had been previously observed. Perhaps, this is due more to the fact, that such cases rarely come under the observation of the ophthalmologists, than to their scarcity.

It so happened, that I met with an observation recently which seems to be of the same nature.

On November 20, 1894, I was consulted by Mrs. H. McD., aged 36, on account of diplopia and dizziness. I found a pronounced paresis of the levator palpebræ superioris, the internal rectus, sphincter pupillæ and of the ciliary muscle of the right eye. The diplopia was overcome by a prism of 34° and

with + 10 Sn. 1 could be read. No cause being elicited for this condition, I put it down as a case of "rheumatic paresis" of the oculo-motor nerve. When I had seen the patient three times, she disappeared from my office. In the latter part of January, 1895, she returned with the statement that she had been stricken with a severe attack of acute pneumonia on the day I last saw her, and that she had recovered quite slowly. During the recovery the paresis had perfectly disappeared and the condition of her eyes was now normal.

When I reported this case at a meeting of the Association of German Physicians of St. Louis, Dr. G. Baumgarten related a case of pneumonia in a boy which was accompanied by convergent squint. In this case the paresis had also disappeared with the recovery from the pneumonia.

The similarity between these cases and the post-diphtheritic paresis of ocular muscles has been pointed out by Westhoff. He might have included the paresis after sore throat without any clinical evidence of diphtheria, of which I have seen quite a number in the course of years.

Perhaps, we will in this way be able soon to expunge from our nosology the terms of "rheumatic paresis, or paralysis" and replace them by "paresis due to such and such a toxine." In cases like the one reported, a meningitis due to the pneumococcus may be, also, thought of, as a possible cause.

SOCIETY PROCEEDINGS.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, March 14, 1895. D. ARGYLL ROBERTSON, M.D., F.R.S.E., President, in the chair.

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CASE OF DOUBLE OPTIC ATROPHY, WITH PECULIAR VISUAL FIELDS.

DR. GEORGE OGILVIE read notes of this case. The patient was a man, aged 57, who was a sorter of cigars, and a moderate smoker. His vision failed in December, 1893. He had previously had epileptic fits, and came of a family with a very neurotic history. The movements of the eyes were normal, the pupils acted sluggishly to light. In October, 1894, V. R., = $\frac{6}{xviii}$; L. fingers at ten feet, with eccentric fixation. Mixed astigmatism in both eyes. He had floating opacities in the vitreous. Both optic discs were pale, the retinal veins were tortuous; there was a congenital crescent in both eyes. R. visual field was contracted for white and colors; a sector down and in was absent. L. visual field: contraction of the field, and complete inferior hemianopia. There was neither sugar nor albumin in the urine; no history of syphilis or alcohol. The knee-jerks were exaggerated, and a moderate degree of ankle clonus was present. The character of the visual fields pointed to a change in the optic nerve itself; it was doubtful if it were a primary atrophy or the result of a neuritis. From an old Moorfields letter in his possession, it was found that he had attended there while suffering from optic neuritis. In February,

1895, the upper and inner quadrant of his R. visual field was missing, giving an appearance of R. lateral hemianopia.

DR. JAMES TAYLOR thought it not necessary to go further than the nerve to explain the ocular symptoms in this case. It was not a case of destructive lesion in the occipital lobe; there was a history of past optic neuritis, and this was the explanation of the changes.

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A CASE OF FILARIA LOA.

Further notes of this case, which he had brought before the Society in October last, were read by the President. After removal of the parasite the patient was not troubled further for six weeks; on February 6 a worm was felt again, but was sought for in vain. Two days later a swelling appeared in the right temporal region. On February 13 the worm was felt beneath the right upper eyelid; it wriggled across and then remained coiled up there. An incision was made, and, after some dissection, a fine filamentous body, smaller than the ordinary filaria, was found; this was identified later as part of the expressed oviduct; a well-formed filaria was found deeper in the tissues, with its oviduct protruding. The blood had been examined many times in the last six months, but no traces of the filaria or its embryos could be found. The patient had occasional swellings of the skin of the arm, such as occur often among residents in Old Calabar. As to the origin of the worms in this case, although the patient had been careful about her drinking water, she had, for ten days before leaving Old Calabar, been too ill to purify the water, and may have become infected by impure water during this time.

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CASE OF TRAUMATIC CATARACT WITH A FOREIGN BODY EMBEDDED IN THE LENS.

MR. W. SPENCER WATSON read this paper. A plumber, aged 29, had injured his right eye several times, but was not

aware that a foreign body had entered his eye. The foreign body was seen, however, in the cataractous lens, which was dealt with first by discission, and subsequently by linear extraction, the foreign body being removed at the second of these operations. Everything went very smoothly, and when the patient was seen about a year afterwards there was a normal-looking pupil, and vision remained good. Mr. Watson pointed out that the time for extraction when a foreign body was present required very careful regulation, the gradual softening of the lens being watched until, it became of a semi-solid consistence, and the operation performed before it had become fluid.

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A FORM OF IRITIS NOT USUALLY RECOGNIZED.

DR BRAILEY read this paper. After a summary of several cases, he arrived at the following conclusions: That a late iritis sometimes follows an acquired syphilis, and that the average time of its attack is about thirteen years from the primary sore. That such iritis is generally double-sided, and its usual form an iritis serosa, that is to say, an iritis or rather an irido-cyclitis with comparatively little tendency to the formation of posterior synechiæ, and accompanied by dots on the posterior corneal surfaces and also by a tendency to secondary glaucoma. That the patient may show other late manifestations of syphilis, as in the cases shown, of which one has ozæna and the other choroiditis disseminata. That a similar late iritis may follow an inherited syphilis, and that the average age of the subject of it, though varying within wide limits, approximates to twenty-one. That in inherited, as in acquired syphilis, the usual form is a double serous iritis. The iritis may, however, be of a much severer type, with varying tension and with the occlusion of the pupillary area with a layer of lymph, such lymph being generally comparatively free from the iris at the pupillary edge. That such an iritis may also be accompanied by larger and more cloudy dots on the posterior

surface of or perhaps deep in the cornea, such deposits with the others resulting in the formation of a dense non-vascularizing triangular plaque deep in or behind the cornea, and usually at its lower part. That the iritis may more rarely be of a different type, either the gummatous with occasionally peripheral anterior synechiæ, or the adhesive leading even to occlusion of the pupil and consequent secondary glaucoma. That apart from the iritis, which simply attends and is quite secondary in degree to severe interstitial keratitis, the late serous iritis of inherited syphilis may show a close relation to interstitial keratitis. Thus a slight interstitial keratitis may be followed after a distinct interval by a gummatous iritis, while the iritis with blocked pupil, deep triangular corneal plaque, and varying tension may be accompanied by fine filmy or denser and wider-spread opacities in other parts of the cornea. Notched teeth are rare or perhaps even uniformly wanting in the pure iritis serosa of late inherited syphilis, while they are present in increasing frequency as the disease approximates in its associated characters to interstitial keratitis. It is very noticeable that the subjects of the late serous iritis of inherited syphilis are often of extremely good physical development.

MR. HIGGINS thought that one of Dr. Brailey's cases looked like an old case of interstitial keratitis, and he asked if such an intercurrent attack could have occurred.

MR. SPENCER WATSON said he would be glad if Dr. Brailey would emphasize the points of novelty in these cases; he had been familiar with them for some time, and thought they were generally recognized.

MR. JESSOP said that one of the cases showed punctate dots on the front of the iris, similar to those he had shown recently at the Society.

MR. LANG said there were ring synechiæ between the periphery of the iris and the cornea, or sometimes isolated peripheral anterior synechiæ in these cases.

DR. HERN asked if the iritis was primary, or an extension from keratitis.

DR. BRAILEY said in these cases the iritis was independent

of keratitis. As to the case of which Mr. Higgins spoke, the boy had been continuously under observation, and the white plaque had developed from a keratitis punctata, and not from an interstitial keratitis.

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CARD SPECIMENS.

DR. SYDNEY STEPHENSON—An Improved Test Type.

DR. BRONNER—Wire Eye Shields, for Use after Cataract Operations.

MESSRS. HARTRIDGE AND GRIFFITH—Cholesterine in Sub-Retinal Fluid of a Detached Retina, in the Eye of a Child Removed for Buphthalmos.

MR. HARTRIDGE—Cholesterine in the Anterior Chamber.

MR. C. DEVEREUX MARSHALL—Microscopical Sections of (1) An Unusual Syphilitic Growth, and (2) Tuberculous Growth.

MR. JESSOP—Primary Sore on Upper and Lower Lid.

MR. VERNON—Case of Pulsating Tumor of Orbit.—*Ophth. Review.*

SELECTIONS.

TWO SUCCESSFUL CATARACT OPERATIONS ON A DOG.¹

BY ROBERT L. RANDOLPH, M.D.

It is generally known that cataract is not uncommon in the lower animals and especially in the dog and horse. In the horse cataract is apt to be the result of recurrent irido-choroiditis, and this latter affection as seen in the horse is remarkable for its tendency to relapses, appearing often periodically and representing the disease known as "moon-blindness." Cataract, then, in the horse is almost always inflammatory in its origin.

When cataract is found in the dog there is no such history of a coincident inflammation, but we find a condition that differs little from the same affection in man. With regard to the operation for cataract in the dog no special difficulties are presented as contrasted with the same operation in man, except that we are compelled to use a general anæsthetic in the former case, and this is a disadvantage. Cocaine has undoubtedly lessened the gravity of cataract operations.

It is evident that the healing process in animals is surrounded with far greater dangers than is the case with human beings, and it is this no doubt that deters us from operating for cataract in the lower animals.

Early last October A. W. Clement, V.S., of this city, brought to my office a handsome pointer dog. The dog was

¹Read before the Johns Hopkins Medical Society.

perfectly blind and had been sent to Dr. Clement for relief. He was eighteen months old and in fine physical condition generally. His master said that he had been going blind for three months, and at the end of that time only light perception was left. On the street he would crouch at his master's feet at the sound of an approaching vehicle and could not be dragged away till the vehicle had passed. When brought to my office and allowed to smell around the room he ran into the wall and chairs at almost every turn. In being led one had to pull him along, as he was fearful of running into objects. On examination I found both eyes free from irritation. The pupils quickly responded to light. With the ophthalmoscope it could readily be seen that the lenses were opaque, and on using a mydriatic I found that they were uniformly and entirely opaque. The color presented by the cataract was more a milk-white than gray, not unlike what we see in the ordinary traumatic cataract when there has been extensive laceration of the anterior capsule and the whole lens has become immediately opaque. A similar appearance is presented by the so-called naphthalin cataract that I have produced in rabbits by feeding them on naphthalin in the manner described by Dor, Panas and others. Such cataracts belong to the variety known as soft cataract. I determined to perform dissection, so that the dog was first given a hypodermatic injection of morphia and then chloroformed. My instruments were boiled a half-hour before using them. Only two instruments are necessary, the needle and fixation forceps. The lids were held open by an assistant. At this time I operated on the right eye, and I may add that the pupil of the eye had been well dilated with atropia before the operation. The needle was passed into the cornea in the usual way and a crucial incision was made in the anterior capsule. Atropia was instilled and the dog was put into a small kennel and allowed to recover from the effects of the chloroform. The next day there was a large mass of cortical substance protruding into the anterior chamber. The recovery was absolutely uneventful and at no time were there symptoms of irritation. At the end of

the first week Dr. Clement observed that the dog went about the stable-yard with greater freedom. He was confined to his kennel for two weeks and whenever let out into the yard he was closely watched by the stable-man. In three weeks there was a perfectly clear pupil, and only within the extreme ciliary margin of the pupil were there any remains of the capsule to be seen. During this time atropia was dropped in the eye three times a day. At the end of three weeks I made the following test: I arranged several chairs in such a manner as to form a zig-zag path leading from one room through a narrow door into the adjoining room, and then went into the adjoining room and called to the dog. He came along the path laid out for him without a pause. This he did several times without striking a chair. I then placed a chair in the doorway and called to him and he jumped over the chair to me without the slight hesitation. That day I operated on the other eye and used cocaine. The dog was exceedingly restless and had to be held down. This restlessness was not due to pain but to nervousness, but it was enough to convince me that a general anæsthetic is indispensable. The operation was similar to the first one, and in five weeks there was to be seen only a small band of capsule lying in the pupillary area.

At this time it was impossible to detect anything wrong with the dog's vision. He moved about with freedom and rapidity, and ten days later his master, Mr. W. T. Wilson, of this city, wrote me that he had taken the dog out on a hunt and had found him just as efficient as ever in so far as his hunting qualities were concerned, and that he jumped fences and ditches as readily as the other dogs in the field.

It seems then that the effect of the operation was to give the dog a vision that is practically perfect. At this time both Dr. Clement and I thought the case a unique one, and as far as I can learn it is quite unique in this country, but since then I have found quite a number of operations of a similar character reported in foreign journals. Among others, White Cooper,² in 1850 gives an interesting account of some successful operations for cataract performed on bears in the London Zoological Gardens. Discission was the operation employed.

Brogniez³ reports a case of successful cataract operation on a horse nine years old, and Chégoin⁴ operated successfully on an ass twenty-one years old.

As a general thing cataract in the lower animals appears in the earlier years of life, and when it occurs in the horse Crisp⁵ thinks the cause is to be found in bad light and abundant exhalations of ammonia. Crisp is of the opinion that constitutional affections have little if anything to do in the causation of cataract in the lower animals, for usually the animals affected are well nourished and live for years. It will be remembered that the physical condition or my case was perfect so far as could be seen. Haltenhoff⁶ reports a case of cataract in a dog associated with diabetes, but on the other hand Professor Moeller,⁷ of the Veterinary School in Berlin, who has operated a number of times for cataract in dogs and horses, has never found diabetes present, and this has also been the experience of Professor R. Berlin.⁸ I failed to test the urine in my case, but the general history of the dog would exclude any such complication; and I may add that in those cases of cataracts in rabbits produced by feeding them on naphthalin, frequent examinations of the urine failed to show the least evidence of sugar, though some of the clinical symptoms of these cases suggested diabetes, as for instance progressive emaciation, hurried breathing, and an excessive flow of urine.

In speaking of the causes, though, of cataract, in dogs more particularly, it is well to note the fact that accommodative strain, which may be a factor in bringing about cataract in man, can here be excluded; and inasmuch as good vision was obtained in the majority of the cases reported, it is not likely that a disease of the retina or choroid had anything to do with the existence of the cataract. Another interesting fact in connection with this case is the rapidity with which the cataract developed. Within three months after the vision began to fail the dog was blind. I was struck by the shortness of the time required for the absorption of the lenses. Ordinarily, even in very young children, it takes at least two months before absorption is complete, while in those who are older, a year or more

with several discissions is the rule. In the first eye absorption was practically complete in three weeks, and in the fellow eye nearly all the lens substance had disappeared at the end of five weeks. One would be apt to think that so far as usefulness was concerned the dog would be worthless, but it will be remembered that this was not so.

I am sure that the absolute necessity of artificial help in the shape of glasses for cataract patients is much overrated. There are cases on record (quoted by White Cooper) where after the operation for cataract the patients were compelled, for the sake of experiment, to get along without glasses—in other words, to accommodate their eyes to the new refractive conditions, and after a few months they could get along quite comfortably, though of course unable to read. The vision of every animal (man included) is no doubt limited to the needs of the animal. It is not likely then that dogs are possessed of human visual acuteness, and it is evident they do not require such vision. Certainly few, if any, demands are ever made upon the accommodative apparatus of the dog's eye, so that the loss of the crystalline lens would be attended with comparatively little or no inconvenience, and the same may be said of the horse.

Possibly the good sight in these cases is to be accounted for by a reproduction of the lens fibres, and in this connection I may refer to the experiments of Cocteau and Leroy d'Etiolles.⁹ These observers found that in a certain length of time after the removal of the crystalline lens in rabbits, dogs and cats, that another lens was formed. It is a curious fact that in several of these experiments the capsule showed no cicatrice, but was perfectly clear, and contained a lens as voluminous and consistent as the lens that was extracted, and differing in no respect from the latter. Gunn¹⁰ reports a case of traumatic cataract that had occurred in a child, where, after the absorption of the cataract, later on in life new lens fibres were demonstrable. By this time a reproduction of lens fibres may have taken place in my case, but we are not justified in attributing the good vision obtained to such a process, for sight improved at

the end of the first week, and the formation of new lens fibres would not likely have begun till the absorption of the old lens was complete.

From investigation made in the London Zoological Gardens it has been found that cataract is common to nearly all of the lower animals, but it is a suggestive fact that cataract is most often seen in the two animals nearest man, the dog and horse. Neither extraction nor couching seems to be proper in operating on the lower animals. The impossibility of keeping the animal quiet, or of surrounding it with any of the usual safeguards, is an objection to extraction. While Moeller has had several successful cases of extraction, he states that his best results followed discission. As to couching, the danger of intraocular inflammation makes this operation quite as objectionable here as it is in the case of man. In my opinion discission is the only operation applicable to these cases. A general anæsthetic is indispensable. A bandage should not be applied, as it attracts the dog's attention to his eye, and it will be rubbed or torn off and injury to the eye would result. It is imperative to use a sterile knife, for we can not here nullify the effects of infection by careful after-treatment, as we sometimes do in man. A small kennel is necessary, so that no temptation is offered to the dog to move about; and finally a 1 per cent. solution of atropia should be dropped in the eye three times daily during the first three weeks. As regards the anæsthetic to be used, my preference—from considerable experience—is in favor of ether, and I have always been under the impression that it was particularly unsafe to administer chloroform to dogs. Dr. Clement tells me that he always gives chloroform and precedes the administration of it with a hypodermatic injection of morphia, and that he has never had any unfortunate results, a fact which he thinks is explained by the administration of the morphia.—*Johns Hopkins Hospital Bulletin.*

²An account of operations for cataract on bears. By White Cooper, F.R.C.S. *Medical Times*, New Series, vol. i, page 621. London, 1850.

³Extraction du cristallin chez le cheval, par A. J. Brogniez. *Annales d'Oculist*, 1843.

⁴Opération de cataracte sur un âne, par Chégoin. *Bull. de la Soc. de Chirurg. de Paris*, 425.

⁵Specimens of cataract and of opacities of the cornea in the lower animals. Edwards Crisp, M.D. *Trans. Path. Soc., London*, vol. xxii, 350.

⁶Klinische Mittheilungen von G. Haltenhoff. *Zeitschr. f. vergleich. Augenheilk.*, 1885, p. 65.

⁷Casuistische Mittheilungen über das Vorkommen und die operative Behandlung des grauen Staars beim Hunde, von Prof. Dr. H. Moeller. *Ibid.*, 1886, p. 138-146.

⁸Beobachtungen über Staar und Staaroperationen bei Thieren, von Prof. Dr. R. Berlin. *Ibid.*, 1887, 59-76.

⁹Experiences relatives à la reproduction du cristallin, par MM. Cocteau et Leroy d'Etiolles. *Journal de Phys. exper. et patholog.* Tom. VII., 30-44.

¹⁰*Trans. Oph. Soc. Unit. Kingdom, London*, 1888, VII., 126.

REVIEWS.

WILLS EYE HOSPITAL REPORTS, VOL. I, NO. 1. Published by
by the Editorial Committee of Wills Eye Hospital, Philadelphia, Pa. Price, \$1.25 per number.

Like a number of other large ophthalmic clinics, the Wills Eye Hospital staff, have begun to publish some of their work themselves in pamphlet form. This first number is certainly a very creditable one and contains much that is interesting and suggestive.

DISEASES OF THE EAR. A TEXT-BOOK FOR PRACTITIONERS AND STUDENTS OF MEDICINE. By E. B. DENCH, Ph.B., M.D.
[New York: Appleton & Co. 1894.]

This is an excellent text-book. It is clear and concise in its language and throughout illustrated in a manner to help the student in grasping the subject. We can heartily recommend it.

ALT.

A CASE OF ACCIDENTAL SPONGE-GRAFTING ON
THE CONJUNCTIVA OF EIGHTEEN MONTHS'
DURATION, WITH SOME SUGGESTIONS
UPON SPONGE-GRAFTING IN
EYE-SURGERY.

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Children's Hospital.

The case herewith reported presents two interesting features:

I. The conditions under which the foreign material was introduced and the length of time it remained attached to the conjunctiva.

II. A beautiful illustration of the so-called process of sponge-grafting, which may suggest for it some further uses in eye-surgery.

The case that of a colored girl, sixteen years old, who came to Wills Hospital, complaining that there had been something growing in her right eye for the preceding eighteen months. On examining the eye I found a small swelling on the outer portion of the lower lid, giving the appearance of a fair-sized chalazion. As I drew down the lower lid to expose the palpebral conjunctiva a small mass protruded, yellowish in color, from which exuded a thin, purulent discharge, and resembling a papillomatous growth in appearance. Subsequent questioning showed that the girl had been an inmate of the House of Correction, having been discharged from that institution last August, after two years' confinement, and that six

months after admission she noticed one morning this growth in the eyelid. She consulted one of the female attendants, and was told to bathe the eye in hot water. After two weeks of this treatment and the growth not disappearing, the attendant resorted to surgical means and attempted to remove it with a pair of forceps. This time she was more successful, securing a portion of the sponge and with it some of the conjunctival tissue, and causing some bleeding from the lid.

As I could not account for the presence of the growth, and also as it resembled sponge in character, I directed my questions with the object in view. The girl then stated that all the girls in her department washed themselves with one large sponge several times a week, and that often after washing she had noticed small particles of sponge adhering to her skin. With this history I then examined a piece of the mass microscopically, and found it to be indeed sponge. The photograph taken did not turn out well, so I can not show the position and relation of the sponge in the conjunctival sac. On examining the lid more closely I found the sponge firmly implanted in the palpebral conjunctiva toward the outer side of the lid, yellowish in color, oval in shape, and with ragged edges; it was 8 mm. long, 7 mm. wide, and 3.5 mm. high. As for the remaining portions of the eye, they were apparently normal, with the exception of that portion of the ocular conjunctiva that came in contact with the sponge when the eyelid was closed. Here the vessels were somewhat enlarged and the conjunctiva slightly hyperemic.

It would seem improbable that a foreign material the size of the piece of sponge stated, consisting of a substance subject to very septic surroundings (*i. e.*, a sponge used in the House of Correction on all kinds of people until it became so rotten that it was falling to pieces), could remain so long in the conjunctival sac without causing the slightest discomfort and only a very little irritation; but I think, if we look into the condition more closely, the absence of symptoms can be accounted for, as the sponge, being of soft animal tissue, becoming attached to the conjunctiva, the granulations springing up

in the interstices of the sponge virtually made it a part of the lid itself, and it therefore caused no more irritation than any other small piece of granulation-tissue in the same position.

As a case of sponge-grafting, the formation of new tissue, as seen in the sketch of the section, shows it to be a perfect success.

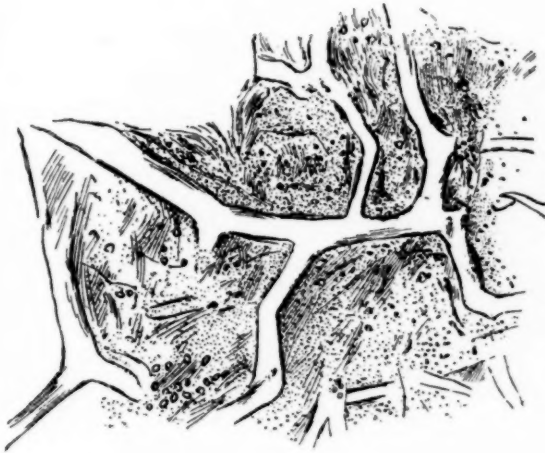


FIG. I.—Showing Granulation-Tissue Intersected by Sponge-Fibers. $\times 300$.

This method of using sponge to replace lost tissue was first suggested by Prof. D. J. Hamilton, of Edinburgh, in 1881, who recognized the fact that in the organization of tissue the blood-clot or fibrinous lymph plays only a mechanical and passive part in any situation in which the organized tissue becomes replaced by a fibrous cicatrix. This being the case, he hit upon the idea of using sponge as a substitute, as the interstices of the sponge resembled the fibrinous network in a blood-clot or in fibrinous lymph, and at the same time being an animal tissue it would undergo tissue-digestion.

The process that occurs when a piece of sponge is placed in contact with an exposed surface and remains long enough

is that a quantity of fibrinous lymph is effused into the sponge; this lymph becomes organized, and then is replaced by granulation-tissue, which extends and fills the interstices of the sponge, with, finally, a total absorption of the sponge-skeleton itself, leaving only a mass of cicatricial tissue.

The girl refused to allow me to remove the entire sponge at that time, but agreed to the removal of a small portion. This was excised, with a small piece of the surrounding tissue, which was cut and mounted by Dr. Charles W. Burr. In hardening the section the free portion of the sponge, that part not being infiltrated by new tissue, was detached from the remainder of the graft. This accident is almost impossible of avoidance, owing to the destructive effect of the hardening fluid on the sponge. I am, therefore, unable to show all the stages from the deep granulation-tissue to the lymph in free sponge.

The section presented the following appearance: A mass of granulation-tissue in different stages of development intersected in all directions by a network of yellowish bands that represent the sponge-skeleton. The base of the new growth is composed of embryonic, more or less developed, connective tissue, which in the deeper layers has quite replaced the sponge-fibers. Above the deep part, gradually shading from it and filling the interstices of the sponge, is the new tissue, which consists of new granulation-tissue, blood-cells, leukocytes, giant-cells, etc.

The evidence of tissue-growth by aid of sponge-graft is clear, but the mode of absorption or disappearance of the sponge-skeleton is as yet unknown, although this undoubtedly occurs, as we find in the deeper layers that the sponge-skeleton is more reduced in size and the fibers are fewer in number.

It is commonly believed, although the section does not show it, that absorption is due to an eroding influence of the giant-cells analogous to the action of the osteoclasts in bone-formation, as they are found in great numbers closely adhering to sponge-fiber.

In my sections there are several places showing giant-cells in close contact with the fibers, but I can not see any evidence of absorption from this cause. I find, also, that these giant-cells are numerous in only the superficial portion, and are extremely rare in deeper portions where the absorption takes place. My own opinion is that absorption is more probably due to a softening or separation of the fiber of a laminated structure by the pressure of the densely packed surrounding granulation-tissue, and, finally, absorption by the juices of the tissues, as the disappearance of the sponge is seen in only the deeper layers and apparently affecting the whole fiber at the same time.

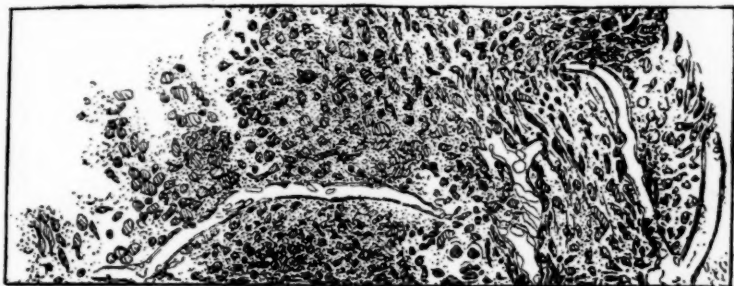


FIG. II—Showing Absorption of Sponge-Fibers. $\times 450$.

So far as I can learn, this is the first instance in which sponge has been grafted, either intentionally or accidentally, on the conjunctiva. From the undoubted evidence of formation of new tissue, from the non-irritating properties of the sponge as seen, from the means under which it was introduced and the length of time it remained in the conjunctival sac, and from the microscopic proof of its final absorption, we have every reason to believe that sponge-grafting is a valuable means of replacing tissue lost by burns or injuries to the eyelids, which are eventually followed by ectropion, entropion, symblepharon, etc., and from the disfigurement caused by shrinking cicatrices.

A CASE OF PARALYSIS OF THE SUPERIOR RECTI MUSCLES.

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In speaking of the rarity of paralysis of the superior rectus, Duane¹ quotes Mauthner as stating in his work upon Paralysis of the Ocular Muscles, that "of 108,000 cases of eye diseases of all sorts, collected by Mooren, there is not a single case of isolated paralysis of the superior rectus recorded, while in Graefe's 40,000 cases there are nine; in Schubert's 20,000 cases, eight, and in Schöler's 20,000, three." Hulke, on the other hand, he says, had the very unusual experience of seeing five cases of isolated paralysis of the superior rectus out of nineteen cases in which the third nerve was affected. Duane's own experience accords with Hulke's; in fact, he says, "isolated paresis of the superior rectus stands next in order to that of the external rectus." He reports fifteen cases, in six of which the paralysis is limited to the superior rectus. In four of these six cases both superior recti are involved, while in seven more out of the total number both were more or less affected.

He arrives at the conclusion that the paresis is not due to a "muscular or orbital lesion of the nerve twig supplying the superior rectus," but is "the result of a weakness of the muscle itself, due to congenital malformation, or, more likely, to arrest of development."

Gowers² says that paralysis of upward movement of the eyes is often observed associated with paralysis of the levators in cases of central diseases; and that possibly there may be a

higher center, disease of which may paralyze upward movement of the eyeballs without affecting the lids. He reports one such case,³ in which the autopsy revealed a very small tumor in the middle line behind the posterior quadrigeminal bodies, damaging these slightly, and also the velum and the adjacent part of the inferior vermiform process of the cerebellum. It is possible, he says, that such a defect may be "due to disease of the hemisphere, but our knowledge of this cause is imperfect." "In the rare cases," he further adds, "in which a lesion is limited to the gray matter of the corpora quadrigemina, the chief eye symptom appears to be a loss of conjugate movements, especially of that upwards."

Congenital ptosis is frequently (or generally) associated with such a defect, and is probably due to a congenital central defect. Uhthoff⁴ in 100 cases of multiple sclerosis, found paralysis of eye muscles in 17, in one of which the paralysis was for conjugate movement upwards. Jeffries⁵ reports five cases, with autopsies by Thomsen,⁶ Wieden,⁷ Hoppe,⁸ Henoch⁹ and Gee.¹⁰ In all these five cases a lesion was found at the level of the nuclei of third pair of nerves, and in all but Thomsen's case the disease was central. In his case the autopsy revealed a gumma at the point of exit of the third nerves, between the corpora mamillaria and the crura. On the left side only a small portion of the crus and substantia nigra was affected, while on the right the growth involved the lower portion of the red nucleus, the median third of the substantia nigra and less of the crus. The right third nerve was extensively degenerated, the left but slightly. The nuclei of the third nerve were normal. In conclusion, Jeffries says that "paralysis of up or down motions, or of both motions, indicate disease in the region of the corpora quadrigemina, but may be due to disease in the third nerves proper, or their points of exit."

At the International Ophthalmological Congress at Edinburg, 1894, Sanvinean reported a case of paralysis of eyes for upward and downward movement and for convergence, a form which was described by Parinaud in 1883.

Verrey¹¹ reports an instance of paralysis of movement

upwards and downwards. The paralysis in this case had appeared suddenly, and at the end of several weeks disappeared.

The following case is of interest, as it shows paralysis of the superior recti alone:

Miss S., age 28 years, gives the following interesting history: Five or six years ago she had what her physician has told me was probably an embolism of one of the cerebral arteries. Her illness, which continued for a year or longer, began with a sore throat; hepatic trouble followed, which was associated with marked jaundice, and finally the paralysis, or rather paresis, appeared. It came on suddenly and involved the right side, but she does not know whether the face was affected. The loss of power was only partial, and she was not confined to bed. Her hearing and vision were very much affected during her illness. Other history in regard to her eyes at that period is uncertain. There is a doubtful history of diplopia at times, but she does not know whether the double vision was produced by looking in any particular direction. Her vision, she says, has become poor, both for distance and for close work, and the eyes tire very readily. Use of them causes frontal headache, though she never has any pain in the head at any other time. She is practically unable to do any reading or close work. Frowns a great deal in her effort to see clearly. Her general health, which was good before that severe attack of illness, has not been the same since that time. She is still very decidedly nervous."

Examination: Vision, O. D. $\frac{5}{xv}$, O. S. $\frac{5}{xii}$. Accommodation, O. D. Jaeger, No. 1 pp, 15 cm.; O. S. Jaeger, No. 1, not; No. 4 pp, 16 cm. Muscles, at distance with Maddox rod esophor, 2° ; left hyperphoria, 2° . In convergence either eye wanders out slightly under cover, or measured with a vertical prism before one eye, exophoria is 6° . The movements of the eyes are perfectly normal in all directions except upward, in which direction they can move scarcely at all, not more than 5 degrees. With a red glass before one eye, it was not possible to produce diplopia in any part of the field. When she

attempts to look up, the eyes manifest a slight unsteadiness, amounting almost to a nystagmus. This oscillatory movement is slightly rotary in character, as if the oblique muscles were attempting to help the recti elevate the globes. There is no paresis of either levator palpebræ. She knew nothing of this peculiar condition until her attention was directed to it, and she does not know how long it has existed. In fact, she seems always to have had some difficulty in this respect, and she certainly has not noticed any difference since her illness.

The ophthalmometer indicates in O. D. $1\frac{1}{4}$ D. axis 105; in O. S. 1, D. axis 90.

Ophthalmoscopic examination: In O. D. the media are clear, disc is round, rather irregular in outline, with its edges somewhat hazy, a crescent of choroidal pigment outward, and patches of similar pigment at several points. The blood-vessels, both arteries and veins, are of full size and normal color, but the disc appears slightly pale. Several splotches of fine retinal changes, the remains of a former retinitis, are scattered throughout the fundus; one patch is almost at the macula. In O. S. the condition is very similar. The splotches faint as in O. D., are more numerous, and several occupy the perimacular region. Under atropine the refraction was carefully measured, with the following result:

O. D. spher. + .75 \ominus cyl. + .87 axis 105 v. $\frac{5}{VI}$.

O. S. spher. + 1. \ominus cyl. + 50 axis 90 v. $\frac{5}{VII}$.

The fields for form and the different colors are perfectly normal.

Urine analysis showed an abundance of amorphous urates, but neither albumen nor sugar. K. J. and station are normal. There is no specific history.

She was given the above correction (less .50 D) for constant use. At once her eyes began to feel more comfortable, and at her last visit, more than two months after she put on her glasses, she said she is feeling very much better in every

respect; is stronger and less nervous; has no more headaches, and can use her eyes as much as she wishes. The condition of the muscles, however, is unchanged.

In all of Dr. Duane's cases there was slight exophoria, as we should naturally expect, but in this patient we find instead two degrees of esophoria. This remains unchanged after she has worn her glasses for two months. Then, too, it is impossible to develop diplopia in any part of her field. The relative strength of the two paretic muscles has, in other cases, often been found to vary from time to time, but in this patient it has remained unchanged, nor is there anything here to indicate spasm of the inferior oblique, as has sometimes been noticed.

As to the cause of the paralysis in this patient, the history of her illness, with the occurrence of a cerebral embolism, would suggest the possibility of an involvement of the nucleus in the floor of the fourth ventricle at the same time, and yet this scarcely seems possible without the patient observing some change in the motility of the eyes.

I am inclined to think that this case is similar in type to those reported by Duane, in that the paralysis is congenital in origin, but I incline to the belief that it is due to central deficiency rather than to malformation or arrest of development of the muscles.

¹Archiv. of Ophth., Vol. xxiii, Nos. 1 and 2, p. 61.

²Diseases of the Nervous System, Vol. ii, p. 185.

³Trans. Ophth. Soc. I, '81, p. 117.

⁴Archiv. of Psych., xxi, 55, 377.

⁵Boston Med. and Surg. Jour., Oct. 20 and 27, 1892.

⁶Archiv. of Psych., xviii, 616.

⁷Centralblatt f. Augenheilk., iv, 209.

⁸Neurolog Centralblatt, 1888, p. 628.

⁹Berliner klin. Wochenschr., 1874, p. 125.

¹⁰St. Barthol. Hospital Report, xxvi, p. 106.

¹¹Revue Medicale de la Suisse romande, March 20, 1893.

SKIN GRAFTING FOR EPITHELIOMA OF THE EYELID.

Dr. Risley exhibited a case of epithelioma of the lower eyelid, in a laborer, aged 50 years. The diseased tissue skirted the edge of the lid near its center for 12 millimeters, and had a vertical diameter of 1 centimeter. It presented the characteristic ulcerated center, inclosed by indurated borders. The tarsal cartilage was involved at only a small point at the margin of the lid, and there was no enlargement of the lymphatics. The epithelioma was inclosed and firmly clamped in the fenestrum of the Desmarres forceps, which excluded the blood-supply. Every vestige of the disease was then removed by scraping with a small scalpel. This done, the forearm, which had been carefully sterilized, was bared and a thin layer of epithelium shaved off with a razor and deftly spread upon the area left by the epithelioma, the thin edges of the graft extending over the edges of the healthy skin.

He urged the importance of attention to every detail in this apparently simple procedure. Aseptic rather than antiseptic precaution should be observed, since any strong antiseptic was liable to injure the surface-cells in the newly-bared area, and also in the delicate graft, and success depended upon the unimpaired health of both. He, therefore, secured asepsis by flooding the field of operation with the physiologic salt-solution. It required very delicate manipulation to secure a graft of sufficient thinness, without allowing it to roll up on the razor. A very thin and sharp, hollow-ground blade was better than one with a flat surface. It should be warm and constantly bathed with the warm salt-solution. The clamp should be removed, and all bleeding checked before applying the graft, since otherwise it would be either washed away by the bleed-

ing or lifted by blood-clots from the necessary contact with the vital cells of the part. The very thin graft required great lightness of touch, in order to spread it smoothly over the part. An excellent plan was to bring the side, next to the edge of the blade, into contact with the healthy skin at one side of the wound, to which it would cling with sufficient tenacity to permit the gentle withdrawal of the instrument, thus permitting it to fall without folds upon the surface to be covered by it. The *cul-de-sac* of the conjunctiva and the surrounding tissue were lightly dusted with iodoform, but none on the graft. A square of aseptic gauze was then spread over the closed eyelids, and this dusted with iodoform, and the whole covered with a liberal pad of absorbing cotton held firmly in place by a roller bandage. This dressing would not be disturbed for two days. The operation completed, he exhibited a patient, upon whom the same had been done, three years before, with complete success. Although the graft had been much larger, there had been no noticeable contraction, and no deformity. In cases where the tarsal cartilage is not too deeply involved, he regarded this procedure with much more favor than the removal of a triangular section of the eyelid containing the diseased tissue, which necessarily shortened the lid, caused deformity and often constant epiphora by dragging the lachrymal punctum out of its normal relation to the eyeball.—*Philadelphia Polyclinic.*